

ORACLES - P-3 Orion - WFF 09/30/18 Science Report

Aircraft: [P-3 Orion - WFF \(See full schedule\)](#)

Date: Sunday, September 30, 2018

Mission: ORACLES

Mission Location: São Tomé

Mission Summary:

- Flight 7:12-14:35UTC
- High-altitude transit for HSRL
- Found somewhat broken clouds at ~7.5S.
- Radiation wall module components:
 - Spiral in somewhat heavier cloud field.
 - Ramped ascent south-bound to just above cloud.
 - Above, below, then sawtooth in-cloud 2-sawtooth leg. Chose sawtooth to capture variability in microphysics.

{AMS, CCN compromised below 3000' altitude by PTI leak up until end of cloud legs}

- 2 min above clouds for 4STAR AOD, then ramped ascent south-bound to start first, north-bound in-situ leg south of spiral.

{11:06UTC, at start of ascent: Power bank failed affecting HSRL, APR3, 4STAR, COMA, PDI; no data from these instruments after this. Also forced a slightly early return and cancellation of final high-altitude leg over wall area.}

- 3 ~15min in-situ legs ~1/3 to south of spiral, 2/3 to north of spiral.
- AOD 0.42 at spiral location; 0.36 at south end of wall & 0.32 at north end of wall.
- At north end of last in-situ leg / north of "wall", descend to measure cloud/aerosol in transit on way home:
 - ~30sec below-cloud, then 2 sawtooths, below-cloud leg, in-cloud level leg w/ HiGEAR/AMS/CCN on CVI.
 - Ascend to aerosol layer but it petered out really quickly
- Transitioned east to hit CALIPSO overpass for RSP; got on their track ~8min after overpass
- {No PTI data this flight due to leak (gasket issue).}

NOTE: Coordinated with MISR local mode. Did square spiral near 7.5S, well coordinated with MISR overpass, in an area of solid low cloud cover.

Submitted by: Sarah Doherty on 10/22/18

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